adopted by Prof. Minchin consisted of two selenium-coated aluminium wires dipping into certain solutions. His "Seleno-aluminium Bridges," described in a paper to the Royal Society in May, 1908, consisted of two plates of aluminium separated by a very thin flake of mica and having a thin layer of sensitive (or conducting) selenium spread across one edge of the mica and the two adjacent portions of the aluminium plates. This further development of his photo-electric work was carried out in the electrical laboratory at Oxford.

Prof. Minchin's application of selenium cells to the measurement of starlight was a notable extension of his experiments. In 1894, in conjunction with Mr. W. E. Wilson, he used his cells to obtain measurable electro-motive forces from the light of planets and stars; and he was thus able to determine the relative intensities of the light of Jupiter, Venus and Sirius. Shortly afterwards, an improvement in the construction of the cells enabled measurements to be made of the E.M.F.'s of the light of Vega, Arcturus, Regulus, Procyon and other stars. A comparison of the results obtained by photo-electric measures with those of photometric measures of stellar magnitude showed close conformity.

Prof. Minchin was an M.A. of Dublin and a member of Queen's College, Oxford. He was elected a fellow of the Royal Society in 1895, and his many friends within the society and without join with the widow and his two children in sympathetic sorrow that the finger of death has touched one who was so rich in the physical and intellectual attributes of life. R. A. G.

NOTES.

We announce with deep regret the death on March 30, in his sixty-second year, of Prof. J. H. Poynting, F.R.S., professor of physics in the University of Birmingham.

Prince Arthur of Connaught has been elected a fellow of the Royal Society, under the statute which provides for the election of Princes of the Blood Royal.

We record with regret the announcement of the death on March 30, in his sixty-fifth year, of the Hon. Rollo Russell, author of a number of works on meteorology and other scientific subjects.

The death is announced, at eighty-one years of age, of Mr. G. Sharman, for more than forty years palæontologist to H.M. Geological Survey at the Geological Museum, Jermyn Street, London.

A handsome brass tablet to the memory of Captain Scott and the southern party of the British Antarctic Expedition was unveiled at St. George's Chapel Royal, Naval Barracks, Chatham, on March 29, by Admiral Sir Richard Poore, Commander-in-Chief at the Nore, and dedicated by Archdeacon H. S. Wood, Chaplain of the Fleet.

Dr. C. H. Browning has been appointed first director of the new Institute of Pathology of the Middlesex Hospital, which has been erected as the gift of Sir J. Bland-Sutton at a cost of between 15,000*l.* and 20,000*l.* Dr. Browning is at present director of the clinical research laboratories in connection with the University of Glasgow.

A strong committee, with the Speaker as president, has been formed in Cumberland, according to the *Times* of March 27, with the object of affording protection to the local fauna. Wherever possible tracts of natural ground will be set apart as reserves, one such tract, Kingmoor, near Carlisle, having been already secured. A "watchers' fund," to provide keepers for such reserves, is being formed, and a close watch is to be kept on nesting ravens, peregrines, and buzzards throughout the county.

In the *Times* of March 27 attention is directed to the lateness of the arrival in this country of spring migratory birds. This lateness is specially notable in regard to a great spring flight of immigrants from Central Europe, which, as recorded by a Norfolk correspondent in the same journal a few days previously, reached Yarmouth on March 11. In normal seasons such flights are usually over by the beginning of the month. A partial explanation may be found in the great drop in temperature which occurred on the Continent between March 10 and March 11, when there was a fall of 13° in the minimum.

The President of the Local Government Board has authorised the following special researches to be paid for out of the annual grant in aid of scientific investigations concerning the causes and processes of disease:—(1) An investigation by Dr. Eardley Holland into the causes of still-births; (2) a continuation of the Board's inquiry into the cellular contents of milk, by Prof. Sims Woodhead; (3) a continuation of the Board's inquiry into the causes of premature arterial degeneration, by Dr. F. W. Andrewes; (4) an investigation by Dr. M. H. Gordon and Dr. A. E. Gow into the etiology of epidemic diarrhœa in children. Announcement of further investigations will be made at a later date.

A wish has been expressed in many quarters that the distinguished services which Prof. Charles Lapworth, F.R.S., has rendered to geology should be commemorated in some permanent manner. The council of the Vesey Club, Sutton Coalfield, of which Prof. Lapworth has been a vice-president for more than twenty-five years, proposes to make a donation from the funds of the club towards such a memorial, and to enable members of the club who desire to be identified personally with the project to participate also, a small committee has been appointed to collect subscriptions. The amount subscribed by members will be handed over in one sum with a list of names only of subscribers. Donations may be sent to Mr. H. H. Sherwood, 109 Colmore Row, Birmingham.

In honour of the memory of the late Henri Poincaré, and in order that his name may be associated with a fund for the encouragement of research in science, the president of the Institute of France, on behalf of the institute, is inaugurating an international subscription with the approval of the family, friends, and admirers of the great French mathematician. It is proposed to arrange for a medal with Poincaré's portrait inscribed on it, and to secure a fund, the proceeds of which will be employed to encourage and assist young men of science engaged in those branches of knowledge with which Poincaré's name is chiefly associated. Donations may be sent to M. Ernest Lebon, secretary and treasurer, 4*bis* Rue des Ecoles, Paris, V.

THE tragic death of the late Dr. H. O. Jones and his wife in the Alps in August, 1912, was recorded in these columns at the time (vol. lxxxix., p. 638). We note with interest that a tablet bearing the following inscription has been placed on the walls of Lewis's School, Pengam:—"In affectionate remembrance of Humphrey Owen Jones, M.A., D.Sc., F.R.S., Fellow of Clare College, Cambridge. A distinguished worker in the field of physical chemistry—a former pupil of the school—who while on his honeymoon in the Alps was killed with his wife by falling from the Aiguille Rouge de Peteret on the 15th August, 1912, at the age of 34 years. This tablet is by the staff, boys, and friends of Lewis's School sorrowfully inscribed." In memory of his wife (whose maiden name was Muriel Edwards), who was a distinguished student of the University College of North Wales, a fund of about 70*l.* has been raised by her fellow-students and handed over to the college to found a "Muriel Edwards's Prize" for distinction in chemistry or physics.

THE annual general meeting of the Ray Society was held on March 26, the president, Prof. W. C. McIntosh, in the chair. The report of the council commenced with an appreciative notice of the late president, Lord Avebury, and an expression of regret at his death, and stated that three volumes, a "Bibliography of the Tunicata," by the secretary, and vols. i. and ii. of the "British Parasitic Copepoda," by T. and A. Scott, for 1912 and 1913, had been issued during the past year; that the volumes for the present year would be vol. iii. of the "British Freshwater Rhizopoda," by G. H. Wailes, and vol. v. of the "British Desmidiaceæ," by W. and G. S. West; and that the issue for 1915 would be vol. iii., part 1, of the "British Marine Annelids," by the president. The account of income and expenditure showed that the finances of the society were satisfactory. Prof. McIntosh was re-elected president, Dr. DuCane God-man treasurer, and Mr. John Hopkinson secretary.

THE following are the lecture arrangements at the Royal Institution, after Easter:—Dr. W. Wahl, two lectures on problems of physical chemistry; Prof. W. Bateson, two lectures on (1) double flowers, (2) the present state of evolutionary theory; Prof. D'Arcy W. Thompson, two lectures on natural history in the classics; Prof. A. Fowler, two lectures on celestial spectroscopy: experimental investigations in connection with the spectra of the sun, stars, and comets; Prof. Svante Arrhenius, three lectures on identity of laws in general and biological chemistry; Prof. Silvanus P. Thompson, two lectures on Faraday and the foundations of electrical engineering; Dr. T. E. Stanton, two lectures on similarity of motion in fluids; Prof. C. J. Patten, two lectures on bird migration; Prof. J. W. Gregory, two lectures on (1) fiords and their origin, (2) fiords and earth movements. The Friday evening meetings will be resumed on April 24, when the Astronomer Royal, Dr. F. W. Dyson, will deliver a discourse on the stars around the north pole. Succeeding discourses will probably be given by Prof. Karl Pearson, Prof. F. Keeble, Mr. R. Mond, Prof. J. C. Bose, and Prof. W. H. Bragg.

IN the *Times* of March 25 is announced the discovery at Kolophon, in Ionia, of a remarkable collection of Greek surgical instruments. They exhibit a type of workmanship unequalled in any other extant specimens, and generally reveal the high progress in surgery which the ancients achieved. With two exceptions all the instruments are of bronze, and even in the case of those made from steel a piece of bronze is added, preserved, apparently for ceremonial reasons as a mystic, sacred metal. The collection includes polypus pincers for the removal of growths, an elevator for raising a piece of depressed bone in the skull, a drill-bow for trephining the skull to produce an exit for the evil spirits which were believed to cause madness and epilepsy, a scoop or cuvette for gynæcological work, a cautery and probes of modern type, scales, and cupping vessels. It is to be regretted that this valuable collection has been secured for the Johns Hopkins University, and will shortly be taken to America. Models, however, are being made, and will be on view in London within a few weeks.

THE royal medals and other honours of the Royal Geographical Society have been awarded this year as follows:—The Founder's medal to Prof. Albrecht Penck, professor of geography at Berlin University, and director of the Oceanographical Institute; the Patron's medal to Dr. Hamilton Rice, of Boston, U.S.A., who for ten years has been closely investigating a little-known part of the large region of northern South America drained by the headwaters of the Orinoco and of the northern branches of the Amazon; the Murchison grant to Commander H. L. L. Pennell, R.N., who was a member of the Antarctic expedition of 1910, and was specially selected by Captain Scott to command the *Terra Nova* after the landing of the shore party; the Gill memorial to Mr. A. E. R. Wollaston, who has made extensive journeys in many parts of the world for zoological and other work; the Cuthbert Peck grant to Dr. J. Ball, of the Geological Survey of Egypt, who has carried out a large amount of scientific geographical work; and the Back grant to Mr. J. N. Dracopouli, for his careful survey and other work in the Sonora desert of Mexico in 1911–12, and his expedition to the Lorian Swamp and neighbouring regions in 1912–13.

THE annual report of the council of the Institution of Mining and Metallurgy was presented at the annual general meeting of the institution on March 26. The report refers to the purchase of the freehold of No. 1 Finsbury Circus, as a permanent home for the institution, and states that the stability of the institution and its future progress have been materially assisted by the gift of 5000*l.* by Lady Wernher, and the further gift of 5000*l.* by Lady Wernher and her co-executors. This sum of 10,000*l.* has been invested as the "Sir Julius Wernher Memorial Fund," and the interest accruing is available for the ordinary purposes of the institution. The council has established as a personal memorial, a "Sir Julius Wernher Memorial Lecture," to be delivered and published triennially. The first lecture will be delivered before the International Congress of Mining, Metallurgy, Engineering, and Economic Geology, to be held in London in July, 1915. The subject of the lecture will be "The Metalliferous Mining Industry in its Relation to the Development of the British Empire," and the name of the lecturer and other particulars will be duly announced. The total membership on December 31, 1913, was 2372, as compared with 2258 in the previous year. "The Consolidated Gold Fields of South Africa, Ltd.," gold medal has been awarded conjointly to Mr. A. J. Clark, and Dr. W. J. Sharwood, for their paper on the metallurgy of the Homestake ore, and its premium of forty guineas to Mr. L. H. Cooke.

A few days before his death Sir John Murray was gathering material in the library of the Royal Society of Edinburgh in preparation for his presidential address at the Meteorological Congress, which is to be held in Edinburgh during next September. The sudden and tragic end of a project just begun is infinitely lamentable, and one naturally asks what will become of Medusa Villa as a centre of scientific activity. The terms of Sir John Murray's will have been so far made public as to bring a great relief to all who knew and appreciated the work which was always being carried on under his direct supervision. The books and collections, especially those bearing on deep-sea deposits, oceanography, and limnology, are to be kept together, along with furniture, instruments, fittings, etc., in the Villa Medusa, so that scientific work may be carried on there for twenty years. A certain number of shares in the Christmas Island Phosphate Company (Limited) are to be devoted to this purpose, the dividends being applied in scientific research or explorations or investigations which are likely to lead to an increase of natural knowledge, particularly along the lines indicated above. The carrying out of this project is left in the hands of his children. Very liberal powers are given in regard to special schemes, such as a scientific exploration of Canadian lakes or oceanographic expeditions. Should a case of substantial expenditure arise, it is suggested that the Challenger Society or the Royal Society of London or the Royal Society of Edinburgh might be consulted. Provision is made for the disposal of the collections and the library and the Christmas Island shares after the lapse of twenty years; or the arrangement may be brought to an end at an earlier date if the dividends should seriously decrease. In the obituary notice last week reference was made to the bathymetrical survey of the fresh-water lochs of Scotland. It should have been said that while Sir John planned, directed, and assisted financially the survey of the lochs a large part of the expense was defrayed by Mr. Laurence Pullar, as a memorial to his son.

Following an article on "The Spider Sense," several letters upon this subject have appeared in the *Times* (March 18-26). Certain people, we are told, are able to detect the presence of a spider (or cat) by means of a "sixth sense." The use of the term "sixth sense" indicates the complete innocence of psychology that characterises the whole correspondence. As to the fact, Prof. Meldola (March 26) is fully justified in pointing out that the neglect of the "negative instance" makes the proffered evidence totally unconvincing. Probably many people believe they can tell when they are being stared at from behind, but a recent experimental test revealed no such ability. On the other hand, such sensitivity does not seem *a priori* impossible. Sensory acuity varies greatly in different individuals and in special conditions. Thus some blind persons can perceive objects at a distance. This seems to be an abnormal development of a normal form of cutaneous sensitivity, the sense-organ being the skin of the face and the drum of the ear. Again, remarkable degrees of hyperæsthesia occur in certain stages of hypnosis, and in the present instances there may possibly be something of the nature of hypnotic auto-suggestion. That smell may play some part, as suggested by Mr. Ponder (March 25) is possible. This sense is imperfectly understood; how, for instance, is a hound able to avoid "back-tracking"? Even in the human its potentialities seem very elastic. Helen Keller, having lost her sense of smell for a few days, says: "A loneliness crept over me as vast as the air whose myriad odours I missed." But the existence of the "sense" and its nature should be quite simply determinable by experiment. Mr. C. Sully, assistant lecturer in psychology at King's College, London, will be glad to hear of a suitably endowed person willing to act as subject.

The *National Geographic Magazine* for February reprints an important report by Mr. F. K. Lane on the conservation of the national undeveloped resources of the United States, particularly in connection with Alaska. This State contains the largest area of unused and neglected land in the country. Its resources are enormous in minerals, forests, and land available for cultivation. Hitherto lack of organisation has impeded development; but if the scheme now formulated is adopted this great national estate will become highly valuable.

The fourth part of vol. i. of the Sarawak Museum Journal is devoted to an elaborate paper by Mr. Sidney H. Ray on the languages of Borneo. This collection of tribal glossaries was begun by Mr. Ray when he visited Sarawak on his return from the Cambridge Anthropological Expedition to Torres Straits in 1898–9. Additions were made to these by Dr. A. B. Meyer, whose papers on his death in 1911 came into Mr. Ray's possession. He has now published these glossaries with notes on the geographical distribution of the tribal dialects. It may be hoped that these collections will form the basis of a comparative study of this little-known group of languages. The value of the collection, not only to philologists, but also to anthropologists, is much increased by the addition of an extensive bibliography of books and papers on the Borneo tribes and their dialects.

IN the Report of the Indian Museum, Calcutta, for 1912–13, Dr. Annandale is enabled to record an increase in the number of visitors, and likewise to chronicle the occupation and installation of the new laboratories and offices on the top of the Chowringhi side of the main building. The whole of the old building has been made over to the Geological Survey.

IN vol. x., part 7, of the Annals of the South African Museum, Mr. K. H. Barnard continues his account of the crustacean fauna of South Africa, dealing in the first instance with the marine Isopoda, of which two genera and numerous species are described as new. Of much more general interest is his description of a new species of the genus Phreatoicus from Table Mountain; the genus being the typical representative of a southern terrestrial and fresh-water family of the Isopoda, containing three other genera. Hitherto the Phreatoicidæ have been known only from Australia, Tasmania, and New Zealand, and it is therefore of great interest to find it represented in South Africa, and that, too, by a member of the typical genus. Whether the group will ultimately turn up in South America remains to be seen, but the new discovery affords additional evidence of the community of the fauna of the old "Gondwanaland."

WE have been favoured with a copy of a summary, by Dr. Max Fürbringer, of the scientific results of Prof. R. Semon's zoological expedition to the Malay Archipelago and Australasia, as worked out by specialists in the six volumes of the well-known "Zoologische Forschungsreisen," to which this "Schlussübersicht" forms an appendix. Prof. Semon started on his journey from Jena in June, 1891, remaining from the following September until January, 1892, in Australia, and spending from February until May in visiting Easter and other islands, and the south coast of British New Guinea. At the end of October, 1892, he arrived in Java, whence he proceeded to the Mollucas, Celebes, etc., finally returning homeward in April, 1893. On his arrival scientific work was commenced with the least possible delay, so that the "Reisen" embodies the results of some twenty years' labour. How greatly these labours have augmented our knowledge of marsupials, monotremes, Ceratodus, and many other groups, to say nothing of their bearing on the problems of distribution in the Austro-Malay area, is well known to every working zoologist.

AN instructive account of experiments on the manuring of grass land in Oxfordshire has been prepared by Mr. G. R. Bland (Bulletin 15, University College, Reading). The work, which was commenced in 1909, has been carried out with special reference to the conditions obtaining with soils of different geological formations, and, in order to allow of comparison in other cases, a geological and a rainfall map of the county are included. The scheme of manuring is, if anything, rather limited in scope, but the general character of the account with regard to yields, profit and loss, botanical composition of the herbage and photographs of certain of the plots, is of great value, and is worthy of imitation by other county workers.

IN a contribution to the *Journal of Agricultural Research*, Mr. G. N. Collins describes a drought-resisting adaptation in maize which appears to possess considerable economic value for conditions in semi-arid regions. Experience has shown that, in the case of common varieties, if the seed is planted at the customary depth, many seeds fail to germinate from insufficient moisture; if planted deep enough to come in contact with moist soil, the plants may fail to reach the surface. A study of the varieties grown by the Hopis and other agricultural Indians shows, however, that these varieties possess two special adaptions: (1) a greatly elongated mesocotyl that permits of deep planting, and (2) the development of a single large radicle that rapidly descends to the moist subsoil and supplies water during the critical seedling stage. The productive power of some of these varieties compares favourably with that of ordinary "improved" varieties even when grown under irrigation conditions. On these grounds a further study of some of these special varieties seems desirable.

To restrain a horizontal pendulum from executing its own oscillations during the passage of earthquake-waves, some method of damping is usually resorted to, either the electromagnetic method of Galitzin, the air-damping of Wiechert, or the liquid damping of other seismologists. After three years' work in experimenting with free and damped pendulums, Dr. A. Cavasino concludes (*Boll. Soc. Sism. Ital.*, vol. xvii., pp. 89–101) that a damped pendulum still tends to oscillate with its proper period; that except with violent earthquakes the beginning of the movement is retarded, it may be for several minutes, as compared with that indicated by a free pendulum; and that less than one-half of the earthquakes recorded by a free pendulum are registered by a corresponding damped pendulum.

IN the Proceedings of the American Philosophical Society, Philadelphia (vol. lii., No. 208, pp. 31–162), Mr. J. J. Stevenson brings to a conclusion his lengthy monograph on the formation of coal beds. Parts i. and ii. appeared in vol. l., and part iii. in vol. li., of the same journal. Whether geologists accept his views or not—and many geologists will do so—all will be grateful to him for his great labour in gathering together the opinions of others on this much-discussed subject, and for the pains he has taken in collecting evidence from modern deposits of carbonaceous material and from Coal Measures of all ages in all parts of the globe. The author concludes:—"The coal beds and the associated rocks are of land origin; the detrital deposits are those made by flooding waters on wide-spreading plains; the coal beds, in all essential features, bear remarkable resemblance to peat deposits, sometimes to the treeless moor, more frequently to the Wald moor." But, as he very truly says, many matters still await explanation, and he emphasises the fact that no extensive coalfield has yet been closely studied, for in spite of the imposing array of skeleton sections there is an astounding lack of detail respecting many matters which appear to have no important bearing on commerce. Until the topography and geography of the Coal Measures land have been worked out, geologists must be content merely with probabilities concerning the remarkable bifurcation of some coal beds, the variations in subordinate intervals between two approximately parallel coal beds, the presence of huge blocks of transported rock in coal and the associated rocks, the immensely long periods of stable conditions indicated by the thickness of some coals, and with similar problems.

An article, entitled "The Meteorological Service on Mercantile Vessels," appears in vol. ix. (1913–14) of the Italian *Annali Idrografici*. The author, Prof. L. Marini, chief of the meteorological branch of the Hydrographical Institute, points out that although meteorological observations have not been neglected by vessels belonging to the several important shipping companies, they have not hitherto been dealt with on the same scale as observations on land. The publication of pilot-charts of the Mediterranean has been left to other countries, *e.g.* the United States, Germany, and this country. It is now intended that Italy shall take her proper place in such work, and with this view an earnest appeal was made in a circular to the national navigation societies on June 1, 1912, by the Minister of Marine, in which he points out the provisions made for the successful working of the service. A long list of registers received by the institute during the succeeding half-year clearly shows that the appeal has met with a very favourable reception among the seafaring community; we may therefore confidently look forward to some valuable contributions in due course to the meteorology of the Italian seas and adjacent regions.

In the *Popular Science Monthly* for March Dr. P. G. Heineman advances the view that development of automobile traffic will be beneficial to public health in two ways: first, by the provision of dust-proof roads, thus minimising the diffusion of disease germs which are commonly associated with dust, and secondly by doing away with stables which are fertile breeding grounds for flies that act as carriers of disease.

Readers of the *Cornhill Magazine* for March will derive considerable enlightenment from the article entitled "After the Death of Euclid," in which Mr. C. H. P. Mayo endeavours to compare the advantages and disadvantages of the old and new methods of teaching geometry. While admitting that the new method is beneficial in many respects, the author evidently considers that the sacrifice of logical training involved in the change may seriously impair its educational value.

The March number of the Transactions of the Institution of Engineers and Shipbuilders of Scotland contains an important paper by Mr. H. Ollendorff on the utilisation of ground adjoining harbours and railway stations. He shows that by the use of suspension railways enabling the goods unloaded from ships at the wharf to be taken direct into the factory, the cost of transport is so far reduced that the "hinterland" of a harbour can be profitably utilised to about ten times the extent it is at present. On this ground he advocates the provision of suspension railways by public authorities, which at the present time provide cranes for service at harbours.

A paper by Hiromu Takagi on the thermomagnetic properties of magnetite, which appears in the third part of vol. ii. of the Science Reports of Tohoku University, Japan, casts some doubt on the accuracy of the results obtained by Prof. Weiss and Foex for the variation of the magnetic susceptibility of magnetite with temperature. They found that at about 680° C. the susceptibility showed a sudden decrease which they attributed to some change in the internal state of the artificial magnetite used by them. Such changes led Prof. Weiss to postulate the existence of the magneton or atom of magnetism which a substance can possess only in integral multiples. The present experiments on natural magnetite show that the substance neither follows Curie's law—susceptibility inversely as the absolute temperature—nor are there any sudden changes in the curve of susceptibility as a function of the temperature.

In the current number of the *Comptes rendus* MM. Charles Moureu and A. Lepape discuss the cause of the constancy of composition of crude nitrogen (nitrogen with the rare gases) from various sources. The ratios between the nitrogen, argon, krypton, and xenon have been found to be the same in gases derived from fire-damp, thermal springs, petroleum, volcanic gases, or the atmosphere. This constancy of composition of nitrogen from natural sources is regarded by the authors as having existed from the nebular stage of the solar system. The same number also contains some measurements by Georges Claude on the amounts of hydrogen, helium, neon, and nitrogen absorbed by charcoal at low temperatures, −182·5° for nitrogen, −195·5° for the other gases. The amounts of helium and neon absorbed are much smaller than the absorptions of hydrogen and nitrogen. The position of hydrogen is anomalous, since it deviates from the rule that the lower the boiling point the smaller the charcoal absorption.

Railless electric traction systems, otherwise designated the "trolley-bus" or "trackless-trolley," already form in several cities extensions to the tramways systems, and there are numerous applications to Parliament for the authorisation of similar lines. Mr. T. G. Gribble, in a paper on these systems read at the Institution of Civil Engineers on March 24, says that it requires no more current to carry the passenger by railless electric traction than it does by a tramway. The author shows that with a traffic density represented by a 2½ minute service, the economy of construction in favour of railless electric traction is about 44 per cent., and in cost of operation about 7 per cent. The economy increases inversely with the traffic density; with a 30-minute service the economy of construction is about 70 per cent., and that of operation is about 36 per cent.

The annual volume of *Knowledge* for 1913 is now available. The twelve monthly issues of our contemporary together form a handsome book which makes a special appeal to readers interested in nature knowledge. Attention may be directed to the excellent illustrations, the plates particularly being well produced. The price of the volume is 15*s.* net.

SOON after the death of Prof. Henri Poincaré, four appreciative notices of his work in various departments of knowledge were contributed to the *Revue du Mois* by Profs. Vito Volterra, Jacques Hadamard, Paul Langevin, and Pierre Boutroux. These studies have now been published together in a volume entitled "Henri Poincaré: L'œuvre scientifique, l'œuvre philosophique" (Paris: Félix Alcan; price 3.50 francs).

THE annual report of the Board of Scientific Advice for India for the year 1912–13 has been received from Calcutta. The report is divided into sections dealing respectively with applied chemistry, astronomy, and meteorology, geology, geodesy, botany, forestry, zoology, veterinary science, and medical research work. An appendix by Dr. W. R. Dunstan contains the report on the scientific and technical investigations conducted for India at the Imperial Institute during the year ended June 30, 1913.

DR. W. LEIGHTON JORDAN writes, with reference to a paragraph on the origin of planetary surface features and the "heart-shaped" figure of the earth, which appeared in our issue of March 19 (p. 69), that in 1866 he applied the term "cardioid" to the earth's shape, and pointed out that the motion of the earth through space tends to create high land in the Antarctic and deep water in the Arctic region. A description of Dr. Jordan's views upon this subject will be found in his work entitled "The Sling" (London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.).

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES FOR APRIL:—

April 3. 15h. 6m. Mars in conjunction with the Moon (Mars 2° 0′ S.).
4. 4h. 28m. Neptune in conjunction with the Moon (Neptune 4° 30′ S.).
5. 23h. 0m. Neptune stationary.
6. 19h. 0m. Mercury at greatest elongation W. of the Sun (27° 46′ W.).
10. 15h. 0m. Mars at quadrature to the Sun.
15. 19h. 0m. Neptune at quadrature to the Sun.
17. 22h. 50m. Uranus in conjunction with Moon (Uranus 2° 20′ N.).
18. 12h. 13m. Jupiter in conjunction with the Moon (Jupiter 1° 50′ N.).
20. 22h. 24m. Mars in conjunction with Neptune (Mars 2° 34′ N.).
23. 2h. 33m. Mercury in conjunction with the Moon (Mercury 5° 30′ S.).
26. 18h. 20m. Venus in conjunction with the Moon (Venus 4° 52′ S.).
28. 11h. 11m. Saturn in conjunction with the Moon (Saturn 6° 22′ S.).

A NEW COMET.—A telegram from Prof. Kobold at Kiel reports the discovery of a new comet by Dr. Kritzinger at Bothkamp. The comet is of magnitude 9·5, and was picked up on March 29 at 15h. 29·1m. Bothkamp mean time. Its position is given as R.A. 16h. 11m. 40s., and declination 9° 31′ S., and the daily motion as +3m. 8s. in R.A., and −32′ in declination. It is described as having a tail.

JUPITER VISIBLE BEFORE SUNRISE.—The planet Jupiter can now be well seen in the mornings, and it is important that telescopic observers examine his disc carefully and note the chief features. Last year the equatorial current had increased its rate of movement, its rotation being 9h. 50m. 11s. from a number of spots on the south edge of the northern equatorial belt. Are these markings still visible, and what is their velocity as compared with that determined during the previous opposition?

The great red spot also exhibited a quickening of speed in 1914, the rotation period being 9h. 55m. 35s. It is probable that at the present time the red spot precedes the zero meridian of System II. (see ephemeris for physical observations of Jupiter in Nautical Almanac) about 3h. 40m. It is impossible to tell exactly, however, because the planet has been too near the sun during the past winter for corrective observations to be made. Transits of the red spot and hollow in the southern belt may, however, be looked for at the following times:—

	h.	m.		h.	m.
April 14	14	27	May 3	15	6
16	16	5	8	14	14
21	15	12	15	14	59
26	14	20			
28	15	58			

Some estimated transits would be valuable in order to determine what the rate of rotation has been during the last six months.

The great south temperate spot now precedes the red spot. The former was no less than about 135° in length during last opposition, and it may ultimately extend all round Jupiter and darken the previously brilliant south tropical zone

A PROPOSED TOWER TELESCOPE.—From Modena we have received a pamphlet describing a tower telescope to be erected to the memory of Secchi. It is proposed to build at Reggio-Emilia in reinforced concrete a pyramidal structure 35 m. high. Its memorial character is to be expressed by making the work, decorated in what is described as the Chaldeo-Babylonian style, serve as a canopy to a seated effigy of Secchi, whilst at the four corners of the base will be placed gigantic statues of Copernicus, Galileo, Kepler, and Newton. The scientific purpose is to make the tower carry the heliostat and objective of a vertical telescope of the type so successfully employed at Mount Wilson. A sum of 500,000 lire (20,000*l.*) is required, of which about 150,000 lire had already been collected by a permanent committee.

This is not the only project now on foot to perpetuate the memory of an astronomer. An influential international comité d'honneur is inviting subscriptions for the erection of a monument to the memory of Laplace, at his birthplace, Beaumont en Auge (Calvados), Normandy.

ANNUAL REPORT OF THE HAMBURG OBSERVATORY IN BERGEDORF.—The report for 1912 of the Hamburg Observatory in Bergedorf has just come to hand. It shows that great strides have been taken since this site was occupied, in spite of various hindrances regarding the larger instruments. Thus the large reflecting telescope had to undergo a change in the method of mounting the mirror, that used by Common